

Application No.: 10/022118

Case No.: 57319US002

Amendments to the Claims:

The following Listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A chemical composition comprising:
 - (a) a first component comprising one or more fluorochemical urethane compounds comprising the reaction product of:
 - (1) one or more polyfunctional isocyanate compounds;
 - (2) one or more hydrophilic polyoxyalkylene compounds;
 - (3) one or more silane compounds of the formula:
$$X-R^1-Si-(Y)_3$$
wherein
X is $-NH_2$; $-SH$; $-OH$; $-N=C=O$; or $-NRH$ where R is selected from the group consisting of phenyl, straight and branched aliphatic, alicyclic, and aliphatic ester groups; R^1 is an alkylene, heteroalkylene, aralkylene, or heteroaralkylene group; and
each Y is independently a hydroxyl; a hydrolyzable moiety selected from the group consisting of alkoxy, acyloxy, ~~heteroalkoxy~~ ~~heteroalkoxy~~, heteroacyloxy, halo, and oxime; or a non-hydrolyzable moiety selected from the group consisting of phenyl, alicyclic, straight-chain aliphatic, and branched-chain aliphatic, wherein at least one Y is a hydrolyzable moiety; and
 - (4) one or more fluorochemical monofunctional compound; and
 - (b) a second component comprising one or more hydrophilic auxiliary compounds capable of further improving the oil- and/or water repellency or soil/stain release properties of a fibrous substrate treated with the fluorochemical urethane compounds.
2. (Original) The chemical composition of claim 1 wherein the polyfunctional isocyanate compound of said first component is a diisocyanate or triisocyanate.

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3. (Original) The chemical composition of claim 1 wherein the fluorochemical monofunctional compound of said first component is of the formula:



wherein:

R_f is a perfluoroalkyl group or a perfluoroheteroalkyl group;

Z is a connecting group selected from a covalent bond, a sulfonamido group, a carboxamido group, a carboxyl group, or a sulfonyl group; and

R^2 is a divalent straight or branched chain alkylene, cycloalkylene, or heteroalkylene group of 1 to 14 carbon atoms; and

X is $-NH_2$; $-SH$; $-OH$; $-N=C=O$; or $-NRH$ where R is selected from the group consisting of phenyl, straight and branched aliphatic, alicyclic, and aliphatic ester groups; R^1 is an alkylene, heteroalkylene, aralkylene, or heteroaralkylene group.

4. (Original) The chemical composition of claim 3 wherein R_f is a perfluoroalkyl group of 2 to 12 carbons.

5. (Original) The chemical composition of claim 3 wherein R_f is a perfluoroalkyl group of 3 to 5 carbons.

6. (Currently amended) The composition of claim 1 wherein said first component polyoxyalkylene compounds are ~~homo-~~ homopolymers of polyoxyethylene and copolymers of polyoxyethylene and polyoxypropylene.

7. (Currently amended) The composition of claim 1 wherein said ~~second~~ auxiliary compounds of said second component are ~~is~~ the reaction product of a polyisocyanate, a blocking agent and a polyoxyalkylene compound.

8. (Currently amended) The composition of claim 7 wherein said isocyanate groups of said auxiliary compounds ~~second component polyisocyanate~~ are blocked isocyanate groups.

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9. (Currently amended) The composition of claim 8 wherein said blocked isocyanate groups are prepared by a thermally reversible reaction with phenols, lactams, or ~~and~~ oximes.
10. (Currently amended) The composition of claim 7 wherein said polyoxyalkylene compounds of said second component are ~~home-~~ homopolymers of polyoxyethylene and copolymers of polyoxyethylene[[,]] and polyoxypropylene[[,]] or polyoxytetramethylene.
11. (Currently amended) The composition of claim 1 wherein the amount of said hydrophilic polyoxyalkylene compounds of said first component is sufficient to react with between 0.1 and 30% of available isocyanate groups, the amount of said silane compounds is sufficient to react with between 0.1 and 25 mole % of available isocyanate groups, and the amount of said fluorochemical monofunctional compounds is sufficient to react with between 60 and 90% of available isocyanate groups, wherein said isocyanate group are of said first component polyfunctional isocyanate compounds of said urethane compounds.
12. (Currently amended) The composition of claim 2 ~~+~~ wherein the amount of said polyoxyalkylene compound of said second component is such that from about 25 to about 75 % of the available isocyanate groups of said auxiliary compound are reacted.
13. (Original) The composition of claim 12 wherein the unreacted isocyanate groups are blocked isocyanate groups.
14. (Currently amended) The composition of claim 1 wherein the ratio of said first component fluorochemical urethane compounds ~~compound~~ to said second component auxiliary compound is from 12:1 to 1:12.
15. (Currently amended) The composition of claim 1 wherein the ratio of said first component fluorochemical urethane compounds ~~compound~~ to said second component auxiliary compound is from 3:1 to 6:1.

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16. (Original) The composition of claim 1 wherein said polyoxyalkylene compound of said first component has a functionality of greater than 1.
17. (Original) The composition of claim 7 wherein said polyoxyalkylene compound of said second component has a functionality of one.
18. (Original) A treatment composition comprising a solution of the chemical composition of claim 1 and a solvent.
19. (Original) The treatment composition of claim 18 wherein the solvent is selected from the group consisting of water, an organic solvent, and mixtures thereof.
20. (Currently amended) The treatment composition of claim 18 comprising from about 0.1 to about 50 weight percent chemical composition.
21. (Original) An article comprising a substrate having a cured coating derived from at least one solvent and a chemical composition of claim 1.
22. (Original) The article of claim 21 wherein said substrate is a fibrous substrate.
23. (Original) A method for imparting stain-release characteristics to a substrate comprising the steps of applying the treatment composition of claim 1, and allowing the coating composition to cure.
24. (Original) The method of claim 23 wherein said substrate is a fibrous substrate
25. (Currently amended) The method of claim 24 wherein said coating composition is applied in an amount sufficient to provide between 0.05% and 5% by weight solids on fiber.

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26. (Original) The method of claim 24 wherein said composition is cured at ambient temperature.
27. (Currently amended) A method for imparting stain-release characteristics to a fibrous substrate comprising the steps of:
- (a) applying a ~~coating~~ treatment composition of claim 18 ~~13~~, and.
 - (b) curing the coating composition at elevated temperature to deblock said blocked isocyanate groups.
28. (New) The chemical composition of claim 1, wherein said second component auxiliary compound is selected from the group consisting of hydrophilic carbodiimides, and hydrophilic polymers of acrylic and/or methacrylic acid.